

## D-SUBMINIATURE SIGNAL PCB CONNECTORS DELTA D

Amphenol's D-Subminiature connectors are part of an industry standard for applications requiring robust and reliable connectors. These proven D-Subminiature connectors are one of the most popular Input/Output interconnects, addressing a wide variety of applications in Telecommunications, Data, Consumer Industrial, Military, Instrumentation and Medical. Since many years Amphenol has been offering a wide range of D-Subminiature connectors to meet various design requirements including those in harsh environment.

The standard density D-Subminiature series are widely used for numerous applications in many market segments. Amphenol offers Delta-D (single shell design) and Frugal-D (two shell design) under this category. Standard density D-subminiature connectors available in solder bucket, straight and angled version. They come with a large number of mounting options.



### TARGET MARKETS



### FEATURES

- A Basic I/O connector comes with five shell size and housing design
- Has a D-shaped shell design
- Meets DIN 41652 and MIL-C-24308 dimensional standards
- Available in Straight, Angle, Wire Wrap, Solder Bucket, Crimp terminations
- Delta-D design (1 shell + 1 housing) with stamped & formed contacts
- Various PCB and Panel mounting accessory options available
- Hoods available in plastic, metalized and metallic form with locking screws
- Lead-free and RoHS compliant

### BENEFITS

- Most popular Rugged and sturdy I/O connector
- Supports the need for polarisation
- Interchangeable and intermateable with other makes
- Support both PCB & Cable mounting requirements
- Price competitive
- Wide variety of choices for secure connection
- Supports cable connection; Prevents risks of pulling up and accidental un-mating
- Meets environmental, health and safety requirements

## ▶ D-SUBMINIATURE SIGNAL PCB CONNECTORS DELTA D

### TARGET MARKETS/APPLICATIONS



Asymmetric Digital Subscriber Line  
(ADSL)  
Base Station  
Switching  
Transmission



Set-top Box



Desktop and Laptop  
Storage System  
Router and Server



Automotive Diagnostics  
Control Drives  
Energy Meter  
Gaming Machine  
Test Equipment  
Office Automation  
POS & Handheld terminal  
Power Supplies  
Parking Meter  
Printer and Copier  
Renewable Energy  
Robotics  
Surveillance Camera  
Avionics



Medical Instrument

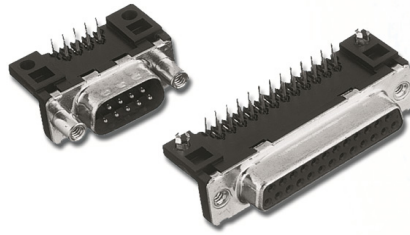


Military Equipment

## RIGHT ANGLE SOLDER TO BOARD



- In compliance with DIN 41652



### ORDERING INFORMATION

<b>D</b>	<b>25</b>	<b>P</b>	<b>13A</b>	<b>4</b>	<b>GV</b>	<b>00LF</b>
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Series: **D**

Number of Contacts: 09, 15, 25, 37

Contacts: Pin (P), Socket (S)

RoHS Status: Standard, RoHS compatible | 00LF

Durability	
Standard class (≥200 mating/unmating)	4
High performance class (≥500 mating/unmating)	6

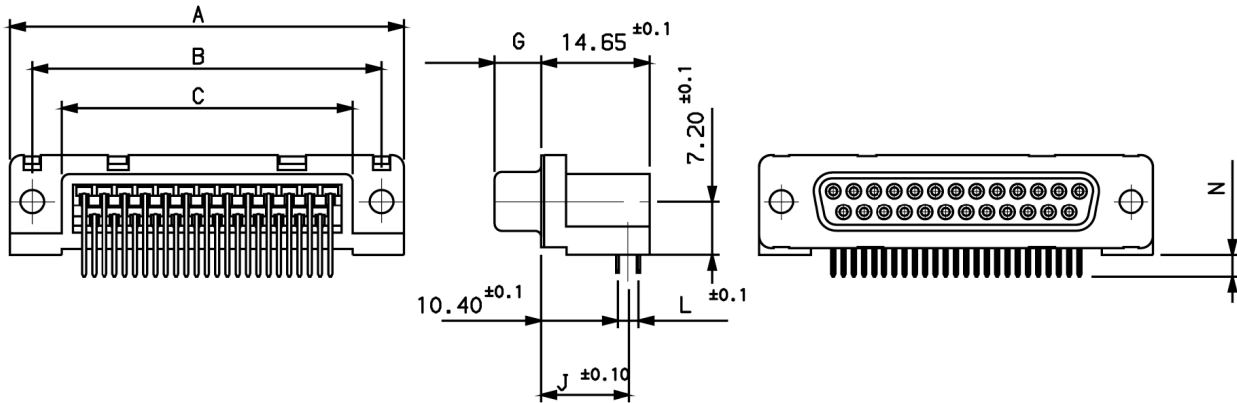
Termination		Code
Type	Footprint/Pitch	Length of Termination
Right angled – Europe standard	10.4/2.54mm	2.90
Right angled – Europe standard	10.4/2.54mm	3.70
Right angled – Europe standard	10.4/2.84mm	2.90
Right angled – Europe standard	10.4/2.84mm	3.70
Right angled – US standard	8.08/2.84mm	3.18

Mouting Options	
Standard hole	PA
Threaded insert M3	PL
Threaded insert UNC 4–40	PX
Female screw UNC 4–40	PV
Harpoons + insert M3 + elec. continuity	GL
Harpoons + insert UNC 4–40 + elec. continuity	GX ✓
Harpoons + female screw UNC 4–40+ elec. continuity	GV ✓
Harpoons + female screw M3 + elec. continuity	GI
Elec. continuity	UA
Insert M3 + elec. continuity	UL
Insert UNC 4–40 + elec. continuity	UX
Female screw UNC 4–40 + elec. continuity	UV

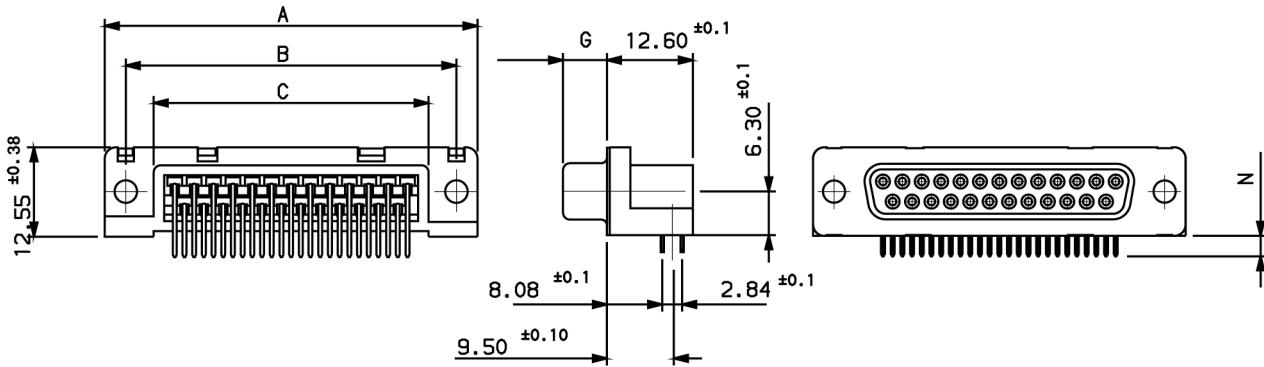
# ▶ D-SUBMINIATURE SIGNAL PCB CONNECTORS DELTA D

## SPECIFIC DIMENSIONS

### EUROPE STANDARD



### US STANDARD



		A <sup>±0,38</sup>	B <sup>±0,12</sup>	C <sup>±0,10</sup>	G <sup>-0/+0,25</sup>	J <sup>±0,10</sup>		L <sup>±0,10</sup>		N <sup>±0,30</sup>		
						Termination		Termination		Termination Length		
						13	23	13	23	13A 23A	13B 23B	33E
09	P	30.81	24.99	16.96	5.90 <sup>-0/+0,15</sup>	11.67	11.82	2.54	2.84	2.90	3.70	3.18
	S	30.81	24.99	16.96	6.05	11.67	11.82	2.54	2.84	2.90	3.70	3.18
15	P	39.14	33.32	25.18	5.90 <sup>-0/+0,15</sup>	11.67	11.82	2.54	2.84	2.90	3.70	3.18
	S	39.14	33.32	25.18	6.05	11.67	11.82	2.54	2.84	2.90	3.70	3.18
25	P	53.03	47.04	39.12	5.70	11.67	11.82	2.54	2.84	2.90	3.70	3.18
	S	53.03	47.04	39.12	6.05	11.67	11.82	2.54	2.84	2.90	3.70	3.18
37	P	69.32	63.50	55.68	5.70	11.67	11.82	2.54	2.84	2.90	3.70	3.18
	S	69.32	63.50	55.68	6.05	11.67	11.82	2.54	2.84	2.90	3.70	3.18

Dimensions in mm

# RIGHT ANGLE PRESS FIT

**UL**® UL RECOGNISED FILE E66906



## ORDERING INFORMATION

<b>D</b>	<b>25</b>	<b>P</b>	<b>82C</b>	<b>4</b>	<b>PA</b>	<b>00LF</b>
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Series:

Number of Contacts	
09	
15	
25	
37	
50*	

Contacts	
Pin	P
Socket	S

Durability	
Standard class (≥200 mating/unmating)	4
High performance class (≥500 mating/unmating)	6

RoHS Status	
Standard, RoHS compatible	00LF ✓

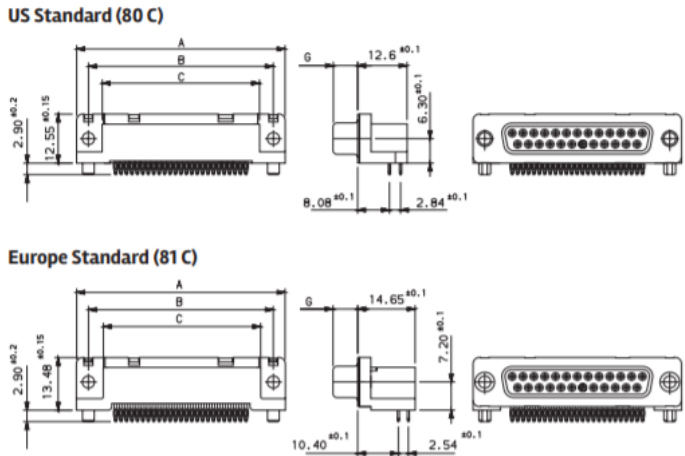
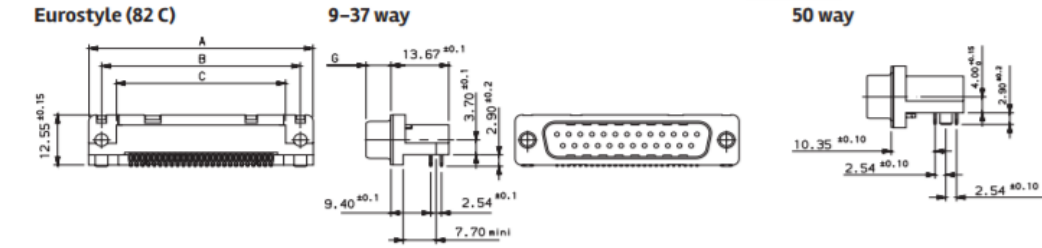
Mounting Options	
Standard hole	PA ✓
Threaded insert M3	PL
Threaded insert UNC 4-40	PX ✓
Female screw UNC 4-40	PV ✓
Harpoons + insert M3	GL
Harpoons + insert UNC 4-40	GX
Harpoons + female screw UNC 4-40	GV

Termination		
Type	Footprint/Pitch	Code
Eurostyle	9.4/2.54 – 9 to 37 way 10.3/2.54 – 50 way	82C ✓
US standard	8.08/2.84 – 9 to 37 way	80C
Europe standard*	10.4/2.54 – 9 to 37 way	81C

\*Only for Eurostyle version Preferred Option ✓

# D-SUBMINIATURE SIGNAL PCB CONNECTORS DELTA D

## SPECIFIC DIMENSIONS



		A±0,38	B±0,12	C±0,10	G-0/+0,25
09	P	30.81	24.99	16.96	5.90 -0/+0.15
	S	30.81	24.99	16.96	6.05
15	P	39.14	33.32	25.18	5.90 -0/+0.15
	S	39.14	33.32	25.18	6.05
27	P	53.03	47.04	39.12	5.70
	S	53.03	47.04	39.12	6.05
37	P	69.32	63.50	55.68	5.70
	S	69.32	63.50	55.68	6.05
50*	P	67.10	61.11	54.10	5.70
	S	67.10	61.11	54.10	6.05

\*Only for Eurostyle version Preferred Option

## SPECIFIC DIMENSIONS

- Application by pressure on insulator
- D-Subminiature insertion kit: 8846 3064 01
- Eye of the needle design

## METALLIZED HOLE DIMENSIONS

		Press-fit Contacts	Press-fit Harpoons
P.C.B hole definition (note 1 and 2)		Drill diameter	∅ 1.15 ref (note 3)
		Drilled hole	∅ 1.18 - 1.2
		Copper plating	25µm min. (recommended 50µ max.)
	non RoHS	Tin-lead plating	15µm max. (recommended 5µ min.)
		Finish hole (after reflow)	∅ 0.94 - 1.09
		RoHS	Tin plating
	Finish hole (after reflow)	∅ 1.00 - 1.09	
		∅ 3.02 - 3.20	
		∅ 3.08 - 3.20	

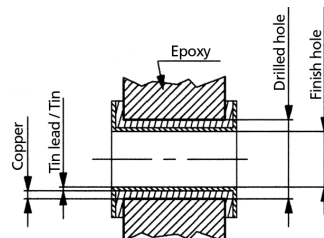
Note 1: These dimensions must be respected to ensure press-fit pin performance

Note 2: According to IEC-352-S specification

Note 3: Vital requirement for press-fit pin performance

## PRESS-FIT PERFORMANCE

	Press-fit Contacts	Press-fit Harpoons
Insertion force	≤100 N	≤120 N
Extraction force	≥30 N	≥30 N



## ▶ D-SUBMINIATURE SIGNAL PCB CONNECTORS DELTA D

### RIGHT ANGLE PIN-IN-PASTE

In compliance with DIN 41652:

- Reflow type: JSTD-020C
- Packaging: IEA-481-B
- Plating: BELLCORE CO GR-1217



### ORDERING INFORMATION

<b>D</b>	<b>09</b>	<b>P</b>	<b>13A</b>	<b>6</b>	<b>RV</b>	<b>12</b>	<b>00LF</b>
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Series: D

Number of Contacts: 09, 15, 25

Contacts: Pin (P), Socket (S)

Durability: High performance class ( $\geq 500$  mating/unmating) 6

Termination Type

Type	Footprint/Pitch	Termination Length	PCB Thickness	Code
Right angled – Europe standard	10.4/2.54mm	2.0mm	1.6mm	13A
Right angled – US standard	8.08/2.84mm	2.0mm	1.6mm	33E

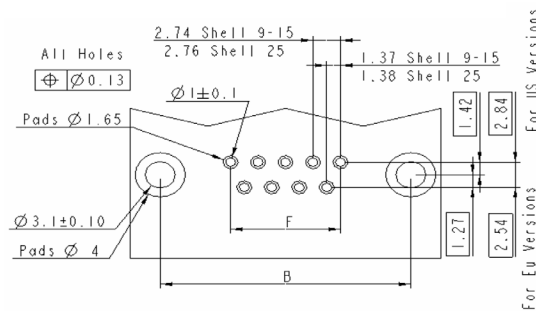
Packaging: Tray for manual positioning (09), Tape and Reel for automatic pick and place (12)

RoHS compatible EU directive 2002/95/EC

Mouting Options: Insert M3 + metal peg + elec. continuity (RL), Insert UNC 4-40 + metal peg + elec. continuity (RX), Female screw UNC 4-40 + metal peg + elec. continuity (RV)

### RECOMMENDED LAYOUTS AND PAD DIMENSIONS

Contacts	B $\pm 0.10$	F	G
09	24.99	10.96	8.22
15	33.32	19.18	16.44
25	47.04	33.12	30.36



# TECHNICAL INFORMATION

## MATERIAL

- Shell: Nickel plated
- Housing: Thermoplastic HT UL940-V
- Contacts: Copper alloy
  - Active Part: Gold over nickel
  - Termination: Matt tin over nickel
- Accessories: Brass
- Front Accessories: Nickel
- Metal Pegs: Tin over nickel

## ELECTRICAL PERFORMANCE

- Current rating: 5A
- Insulation resistance:  $\geq 5000M\Omega$
- Contact resistance:  $<10m\Omega$
- Dielectric withstanding voltage: 1000V RMS

## MECHANICAL PERFORMANCE

- Mating/unmating cycles: 500 min.

## ENVIRONMENTAL

- Operating Temperature Range:  $-55^{\circ}C$  to  $125^{\circ}C$

## APPROVALS AND CERTIFICATIONS

- Product lead free in accordance to RoHS 2002/EC/95

## TARGET MARKETS/APPLICATIONS



Asymmetric Digital Subscriber Line (ADSL)  
Base Station  
Switching  
Transmission



Set-top Box



Desktop and Laptop  
Storage System  
Router and Server



Automotive Diagnostics  
Control Drives  
Energy Meter  
Gaming Machine  
Test Equipment  
Office Automation  
POS & Handheld terminal  
Power Supplies  
Parking Meter  
Printer and Copier  
Renewable Energy  
Robotics  
Surveillance Camera  
Avionics



Medical Instrument



Military Equipment

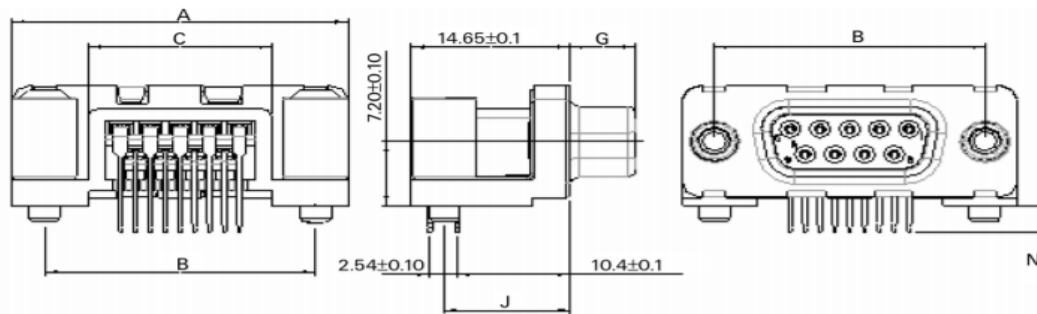


## ▶ D-SUBMINIATURE SIGNAL PCB CONNECTORS DELTA D

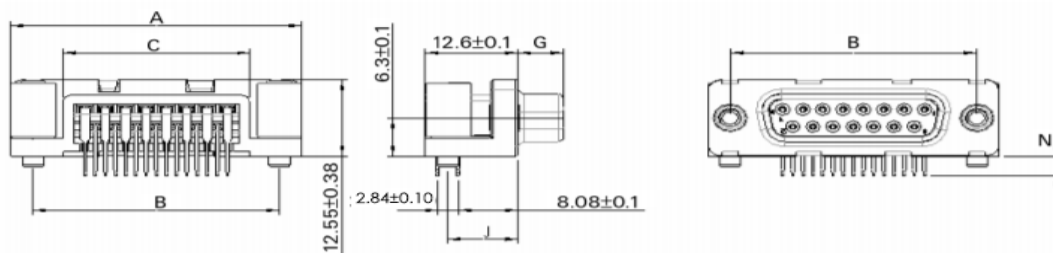
### SPECIFIC DIMENSIONS

#### EUROPE STANDARD

##### Europe Standard



##### US Standard



#### Dimensions

		A $\pm 0,38$	B $\pm 0,12$	C $\pm 0,10$	G $-0/+0,25$	J $\pm 0,10$		N $\pm 0,30$	
						Termination		Terminal Length	
						13	33	13A 33E	13B
09	P	30.81	24.99	16.96	5.90 $-0/+0,15$	11.67	9.50	2.00	2.90
	S	30.81	24.99	16.96	6.05	11.67	9.50	2.00	2.90
15	P	39.14	33.32	25.18	5.90 $-0/+0,15$	11.67	9.50	2.00	2.90
	S	39.14	33.32	25.18	6.05	11.67	9.50	2.00	2.90
25	P	53.03	47.04	39.12	5.70	11.67	9.50	2.00	2.90
	S	53.03	47.04	39.12	6.05	11.67	9.50	2.00	2.90

Dimensions in mm

# STRAIGHT SOLDER TO BOARD

**UL**® UL RECOGNISED FILE E66906



## ORDERING INFORMATION

<b>D</b>	<b>25</b>	<b>P</b>	<b>24A</b>	<b>4</b>	<b>GV</b>	<b>00LF</b>	Standard series, RoHS compatible
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Serie

Number of Contacts	
09	
15	
25	
37	
50	

Contacts	
Pin	P
Socket	S

Mounting Options	
Standard hole	PA
Threaded insert M3	PL
Threaded insert UNC 4-40	PX
Female screw UNC 4-40	PV
Harpoons + insert M3 + elec. continuity	GL
Harpoons + insert UNC 4-40 + elec. continuity	GX
Harpoons + female screw UNC 4-40 + elec. continuit	GV ✓

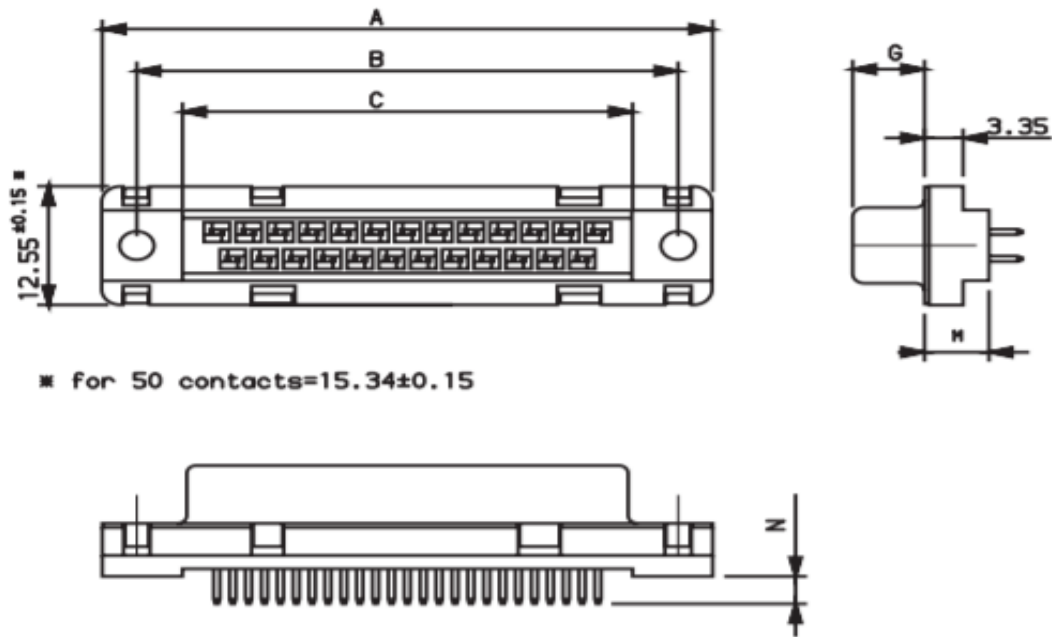
Durability	
Standard class (≥200 mating/unmating)	4
High performance class (≥500 mating/unmating)	6

Termination Type				
Type	Footprint/Pitch	Termination Length	PCB Thickness	Code
Straight version (low profile)	5.6/2.84mm	2.90	1.6mm	14A
Straight version	6/2.84mm	2.90	1.6mm	24A ✓
Straight version	6/2.84mm	3.70	2.4mm	24B
Straight version	6.9/2.84mm	2.90	1.6mm	34A

Preferred Option ✓

## ▶ D-SUBMINIATURE SIGNAL PCB CONNECTORS DELTA D

### SPECIFIC DIMENSIONS



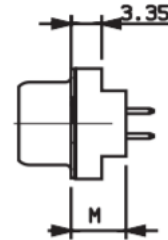
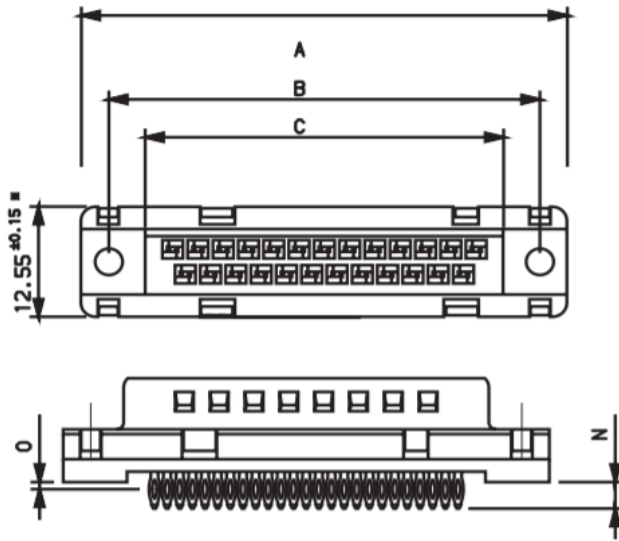
Dimensions										
		A <sup>±0,38</sup>	B <sup>±0,12</sup>	C <sup>±0,10</sup>	G <sup>-0/+0,25</sup>	M <sup>±0,10</sup>			N <sup>±0,30</sup>	
						Terminal			Terminal Length	
						14	24	34	14A 24A 34A	24B
09	P	30.81	24.99	16.96	5.90 <sup>-0/+0,15</sup>	5.60	6.00	6.90	2.90	3.70
	S	30.81	24.99	16.96	6.05	5.60	6.00	6.90	2.90	3.70
15	P	39.14	33.32	25.18	5.90 <sup>-0/+0,15</sup>	5.60	6.00	6.90	2.90	3.70
	S	39.14	33.32	25.18	6.05	5.60	6.00	6.90	2.90	3.70
25	P	53.03	47.04	39.12	5.70	5.60	6.00	6.90	2.90	3.70
	S	53.03	47.04	39.12	6.05	5.60	6.00	6.90	2.90	3.70
37	P	69.32	63.50	55.68	5.70	5.60	6.00	6.90	2.90	3.70
	S	69.32	63.50	55.68	6.05	5.60	6.00	6.90	2.90	3.70
50	P	67.10	61.11	54.11	5.70	5.60	6.00	6.90	2.90	3.70
	S	67.10	61.11	54.11	6.05	5.60	6.00	6.90	2.90	3.70

Dimensions in mm



## ▶ D-SUBMINIATURE SIGNAL PCB CONNECTORS DELTA D

### SPECIFIC DIMENSIONS



\*For 50 contacts: 15.34 ± 0.15  
For other dimensions, consult us

Size	A $\pm 0.38$	B $\pm 0.12$	C $\pm 0.10$
09	30.81	24.99	16.96
15	39.14	33.32	25.18
25	53.03	47.04	39.12
37	69.32	63.50	55.68
50	66.93	61.11	53.11

Termination Type	M $\pm 0.3$	N $\pm 0.3$	O $\pm 0.2$
90C	5.60	3.40	1.20
91C	6.00	3.00	0.80

### PRESS-FIT FEATURES

- Application by pressure on insulator
- D-Sub insertion kit: 8646 3064 01
- Eye of the needle design

### METALLIZED HOLE DIMENSIONS

		Press-fit Contacts	Press-fit Harpoons
P.C.B hole definition (note 1 and 2)		Drill diameter	Ø 1.15 ref (note 3)
		Drilled hole	Ø 1.18 - 1.2
		Copper plating	25µm min. (recommended 50µ max.)
	non RoHS	Tin-lead plating	15µm max. (recommended 5µ min.)
		Finish hole (after reflow)	Ø 0.94 - 1.09
	RoHS	Tin plating	0.8 to 1.2µm
Finish hole (after reflow)		Ø 1.00 - 1.09	

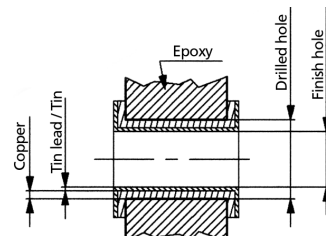
Note 1: These dimensions must be respected to ensure press-fit pin performance

Note 2: According to IEC-352-S specification

Note 3: Vital requirement for press-fit pin performance

### PRESS-FIT PERFORMANCE

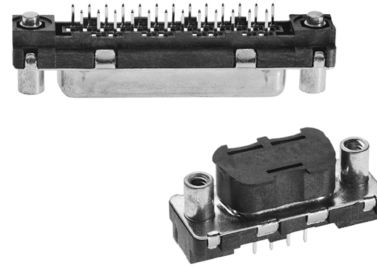
	Press-fit Contacts	Press-fit Harpoons
Insertion force	≤100 N	≤120 N
Extraction force	≥30 N	≥30 N



## D-SUBMINIATURE SIGNAL PCB CONNECTORS DELTA D

### STRAIGHT PIN-IN-PASTE

- In compliance with DIN 41652:
  - Reflow type: JSTD-020C
  - Packaging: IEA-481-B
  - Plating: BELLCORE CO GR-1217

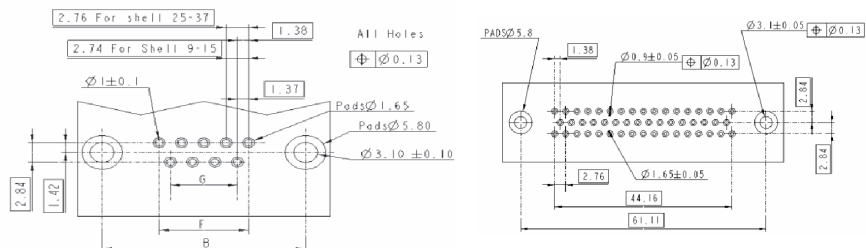


### ORDERING INFORMATION

<b>D</b>	<b>09</b>	<b>P</b>	<b>24A</b>	<b>6</b>	<b>RV</b>	<b>12</b>	<b>LF</b>
Series		Contacts		Durability			LF: RoHS compatible EU directive 2002/95/EC
Number of Contacts		Pin P Socket S		High performance class (>500 mating/unmating) 6			
09							
15							
25							
37							
50							
Termination Type							
Type	Footprint/Pitch	Termination Length	PCB Thickness	Code			
Straight version	6.0/2.84mm	2.0mm	1.6mm	24A			
Straight version	6/2.84mm	2.9mm	2.4mm	24B			
Mounting Options							
Insert M3 + metal peg + elec. continuity	RL	RL	RX				
Insert UNC 4-40 + metal peg + elec. continuity	RX						
Female screw UNC 4-40 + metal peg + elec. continuity	RV						
Packaging							
Tray for manual positioning	09						
Tape and Reel for automatic pick and gripper device (not available in 37 and 50 ways)	12						
Tape and Reel and pick-up cap for vacuum nozzle device (not available in 37 and 50 ways)	22						

### RECOMMENDED LAYOUTS AND PAD DIMENSIONS

Contacts	B <sup>+0.10</sup>	F	G
09	24.99	10.96	8.22
15	33.32	19.18	16.44
25	47.04	33.12	30.36
37	63.50	49.68	46.92



## ▶ D-SUBMINIATURE SIGNAL PCB CONNECTORS DELTA D

### TECHNICAL INFORMATION

#### MATERIAL

- Shell: Steel, nickel plated
- Housing: HT UL94V-0
- Contacts: Copper alloy
  - Active part: Gold over nickel
  - Termination: Matt tin over nickel
- Accessories: Brass, bright tin over nickel

#### ELECTRICAL PERFORMANCE

- Current rating: 5A
- Insulation Resistance:  $\geq 5000M\Omega$
- Contact Resistance:  $< 10m\Omega$
- Dielectric Withstanding Voltage: 1000V RMS

#### MECHANICAL PERFORMANCE

- Mating/unmating cycles: 500 min.

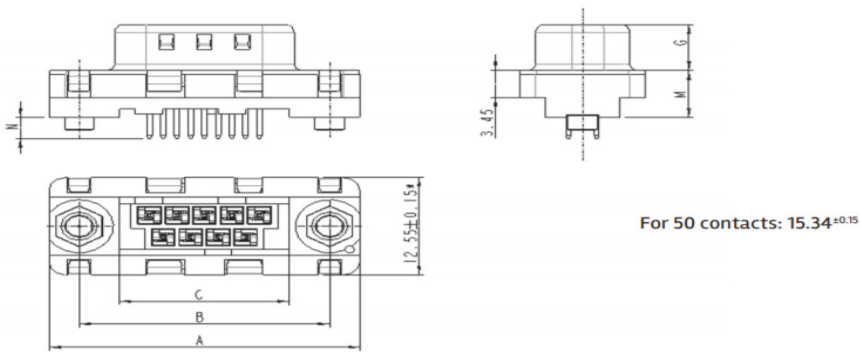
#### ENVIRONMENTAL

- Operating Temperature Range:  $-55^{\circ}C$  to  $125^{\circ}C$

#### APPROVALS AND CERTIFICATIONS

- Product lead free in accordance to RoHS 2002/EC/95

### SPECIFIC DIMENSIONS



Dimensions								
		A $\pm 0,38$	B $\pm 0,12$	C $\pm 0,10$	G $-0/+0,25$	M $\pm 0,10$	N $\pm 0,30$	
							Terminal Length	
							24A	24B
09	P	30.81	24.99	16.96	5.90 $-0/+0,15$	6.00	2.00	2.90
	S	30.81	24.99	16.96	6.05	6.00	2.00	2.90
15	P	39.14	33.32	25.18	5.90 $-0/+0,15$	6.00	2.00	2.90
	S	39.14	33.32	25.18	6.05	6.00	2.00	2.90
25	P	53.03	47.04	39.12	5.70	6.00	2.00	2.90
	S	53.03	47.04	39.12	6.05	6.00	2.00	2.90
37	P	69.32	63.50	55.68	5.70	6.00	2.00	2.90
	S	69.32	63.50	55.68	6.05	6.00	2.00	2.90
50	P	67.10	61.11	54.11	5.70	6.00	2.00	2.90
	S	67.10	61.11	54.11	6.05	6.00	2.00	2.90

Dimensions in mm

IN0DSUBSGD002/EA4